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ORIGINAL ARTICLES.

THE THERAPEUTIC VALUE OF ADRENALIN CHLORID.*

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IN undertaking to present some of the evidences of the therapeutic value of adrenalin, I feel obliged to limit myself to personal experience. Twelve hundred and twenty-two experiments form the basis of this report; most of the experiments were made at my clinic, at the Hospital College of Medicine.

My first experiment was with a case of muco-purulent conjunctivitis. After cleansing the conjunctiva with a solution of borax, I instilled one drop into each eye of the adrenalin solution in distilled water, 1 to 10,000. In less than one minute the eyes were perfectly clear and free from any sign of vascular injection. This condition remained twenty-two minutes, when it was noticed the vessels were beginning

*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

to dilate. The full effect of the drug did not pass off, however, until forty-five minutes had elapsed.

The next case was a foreign body in the cornea, which had remained twenty-four hours. The eye was very red and watery, with morbid sensibility to light. One drop of adrenalin solution in distilled water, 1 to 10,000, cleared up the eye completely in three-fourths of a minute. A solution of cocaine was instilled, and the foreign body removed. At the end of one hour the eye was still clear and free from irritation. The patient did not again return.

M. S., æt. 43, kerato-cyclitis, from a blow received in the eye. Tension +, eye very red, painful, and with profuse lacrymation, photophobia, striated interstitial opacity of the cornea obscuring the pupil. One drop of the adrenalin, 1 to 5000, in normal salt solution, reduced the tension, and dissipated every manifestation of vascularity within one minute. Twenty-four minutes after the application the first sign of returning vascularity appeared. The photophobia and lacrymation ceased before the end of the first minute. No other local treatment was applied.

January 15th, patient returned with decided improvement in the condition of the eye. Another application of a single drop of the adrenalin solution was made and directed to be repeated every four hours.

January 16th, the eye is still more improved, and the corneal opacity much diminished. The pupillary area is now distinctly visible without illumination. Improvement continued from day to day until January 24th, when but slight opacity was visible at the inferior margin, and the vascular injection of the cornea, as well as of the conjunctiva, had entirely disappeared. This case is remarkable because the kerato-cyclitis had resisted treatment about four weeks before the application of the adrenalin.

January 25th, the patient had entirely recovered; no irritation in the eye. Sight = fingers at 3 feet.

January 14th, M. B., æt 30, tanner. On January 2d, patient received a blow in the right eye, which caused great pain and sudden loss of sight. Dr. S., who was called to see him, found the anterior chamber filled with blood, which gradually disappeared by absorption. The cornea, however,

was so opaque as to render the pupil invisible. Two eminent specialists were consulted, and the treatment suggested by them was continued until all signs of irritation in the eye had ceased. The corneal opacity, however, remained.

At my first examination, January 14th, the pupil could be located by oblique illumination only. The patient was unable to count fingers at any distance. One drop of the solution of adrenalin was instilled and directed to be repeated three times every day.

February 24th, patient sees in the injured eye $= {}^{6}/_{24}$ Snellen.

February 28th, patient claimed to have greatly improved in vision. The opacity of the cornea was no longer visible. He now reads ${}^{6}/_{12}$.

March 16th, the condition of the eye seems normal. Sight $= {}^{6}/_{9} +$ Snellen.

January 15th, S. J., æt 46, syphilitic iritis of ten days' duration; gummatous nodules project from the margin of the pupil. She has been taking what is called the mixed treatment.

For the relief of the pain she was directed to have 10 grains of the salicylate of sodium in a large glass of water, to be taken every hour from 6 P.M. until relieved. The mercury was discontinued and five grains of the iodide of potassium in a half pint of water, every three hours, each dose to be followed by a half pint of fluid nourishment, was directed. The conjunctivæ were unusually injected. One grain solution of the sulphate of atropin in two drachms of water was directed to be instilled into the eyes every three hours.

January 16th, patient rested better last night after taking the salicylate. Pupils still contracted; no change in treatment.

January 18th, no apparent change being present, a drop of the 1 to 10,000 solution of chloride of adrenalin, in normal salt solution, was instilled into each eye. Two minutes afterward the eyes were pale as marble, and only the larger sub-conjunctival vessels were visible. The patient was detained for observation. Two hours afterward the eyes were still clear, and a drop of atropin solution was instilled and the patient directed to continue as before.

January 19th, the pupils are now for the first time dilated in the spaces between the gummata. Adrenalin is to be contined three times daily.

January 21st, a few points of synechia prevented complete dilatation of the pupils. The conjunctival injection was greatly diminished. There can be no doubt of the beneficial effects of the adrenalin in assisting the action of the atropin.

January 26th, patient shows no signs of iritis; the gummata have disappeared. The pupils are dilated ad max. and the conjunctival injection is entirely absent. The patient was discharged free from any sign of irritation in the eye on the 7th of February.

In an aggravated case of chronic purulent conjunctivitis, complicated with trachoma, after instilling a drop of adrenalin solution, the trachomatous bodies were crushed out, and the eye flushed with bichloride of mercury solution at intervals, the adrenalin seemingly greatly hastened recovery.

In a variety of different forms of iritis, and a large number of cases of phlyctenular keratitis, the adrenalin apparently greatly hastened recovery, and certainly improved the patient's comfort in every instance.

I have not the time nor you the patience to go further into details. I will close by summarizing some of the effects I have witnessed from its use.

First. It is a powerful hemostatic and acts promptly, generally within one minute from the time it is applied locally to mucous surfaces.

Second. Its effects persist from twenty minutes to four hours.

Third. It promptly relieves ciliary pain in all forms of keratitis, iritis, and even the cyclitis of glaucoma.

Fourth. It reduces ocular tension in glaucoma, and apparently prevents hemorrhage in iridectomy.

Fifth. It promptly clears up interstitial opacities of the cornea, following contusions, and seems to favorably modify the opacities of keratitis-punctata in cases of syphilitic iritis.

Sixth. It will in many cases so reduce the swelling in the tear passages as to allow a stream of fluid to pass from Anel's syringe through the duct without the use of a probe. In an old purulent dacryo-cystitis, the pus being pressed out with

the finger through the tear sac, about two minims of adrenalin was passed in with the Anel syringe. Five minutes later a charge of chloride of sodium solution passed readily through the duct into the nose. Repeating this procedure daily prompt recovery was secured without the introduction of the probe. In a great variety of tinnitus aurium prompt and sometimes lasting benefit follows the introduction of a drop of adrenalin solution through the Eustachian catheter, blown into the tympanic cavity. A number of cases of tinnitus, without serious impairment of hearing, have been permanently relieved by two or three applications of the adrenalin through the catheter.

Seventh. In all forms of swelling in the lining of the nose prompt relief follows the application of four or five minims of the adrenalin solution sprayed into the passage. In this way the superior crypts may readily be opened, and medicated fluids sprayed into the passage, or other applications made, where access is otherwise impossible.

It renders operations in the nasal passages and elsewhere nearly or quite bloodless, and does not, as some claim, predispose to secondary hemorrhage, but has a contrary effect. The 1 to 1000 solution of adrenalin in chloride of sodium may be relied upon to relieve any case of epistaxis.

In cases of secondary hemorrhage, after operations in the nasal cavities or tonsils, an application of adrenalin solution on a cotton mop, pressed upon the bleeding surface, proves promptly efficient as a hemostatic.

The adrenalin solutions are, in every sense of the word, superior to any preparation of the suprarenal extract, or of the desiccated glands, which I have been able to procure, and I think the world is deeply indebted to Takamine for his discovery.

DISCUSSION.

Dr. Adolf Alt, St. Louis.—Parke & Davis sent me, and I suppose some of you, a half-dozen bottles of adrenalin in December last, and I have experimented quite largely. I agree with the gentleman in regard to its effect in bleaching the mucous membrane, but I fail, aside from this, to see any therapeutic value in the treatment of eye affections. Unless

you use cocaine you cannot even operate painlessly. I have tried it faithfully in all sorts of diseases of the eye, and also in the ear where I thought I might help to shrink the swollen membrane, but in the latter I did not succeed. Adrenalin will, furthermore, deteriorate even when the bottle is not opened. At least my solutions all show a fungus growth now, and they do not act by far as promptly as they did in the beginning. Only a few weeks ago I tried to demonstrate its action in the German Medical Society of St. Louis, with no success whatever. Still, I think the fresh solution acts promptly as a vaso-constrictor, and is therefore of some value in rendering operations on mucous membranes bloodless, or at least less bloody.

REPORT OF A CASE OF GLIOMA OF THE RETINA.*

By J. H. JOHNSON, M.D.,

KANSAS CITY, MO.,

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THE patient in the case, I wish to report, was a six-year-old boy, raised at Olathe, Kansas, who had previously been apparently healthy. When I saw him the parents had for some time noticed the yellowish or whitish-red light, which is known as the amaurotic cat's-eye, especially in a room not well illuminated. This condition remained unchanged for quite a while. The parents had no suspicion that anything was wrong with the child until the vision in the left eye began to fail; then they realized that something must be wrong, and sought the aid of a physician, who did not recognize the real nature of the case.

The eyeball increased in size for a time, then it began to shrink. Thinking that another physician might understand the case better, they discharged the one that had been treating the case. The physician who followed gave them encouragement by telling them he could cure the case in a short time and that the former doctor had not given the proper treatment. But it was only a short time until the eye began

*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

to enlarge again, glaucoma setting in, accompanied with great pain. This the doctor was unable to control, and Dr. McCall was called in consultation. The doctor found panophthalmitis of such a degree that it threatened the integrity of the eyeball. He recommended that the child be taken to Kansas City to have the eye enucleated.

The patient was brought to me on May 1st. He was a bright boy, well nourished, and had lost but little flesh. His parents were of German descent, healthy, and gave no history of any ancestors having had glioma or any other malignant trouble. When I first saw the patient he was suffering with a great deal of pain. His eyeball was staphylomatous and filled with pus. The only thing left to do was to enucleate the eye, which I did, merely expecting to relieve the suffering temporarily. After dividing the tendons of the recti muscles, with curved forceps the optic nerve was seized from the nasal side of the orbit, drawn far forward and severed as far back as possible with enucleation scissors inserted at the temporal side of the orbit, in hopes to remove all the malignant cells. In this we failed, because the disease had extended into the optic nerve beyond where it was severed and also into the surrounding tissue in the posterior part of the orbit. Knowing that the condition was certain to return in a short time, I informed the parents of this. Two months later the case returned to the city with the growth beginning to extend beyond the eyelids. Thinking that a picture might be appreciated in the near future, I requested the father to allow us to photograph the patient, which he granted. The patient had become hard of hearing in the left ear and also complained of toothache, especially in the lower teeth of the same side. I found that this was due to pressure caused by infiltration of the malignant cells into the upper jaw, gums and surrounding tissue, including submaxillary and parotid glands on that side, causing a certain amount of swelling, especially in the gums. I called Dr. Sullivan, a dentist, to examine the teeth, who agreed with me that the pain was not due to the teeth but was a reflex pain due to the pressure upon the superior maxillary nerves.

The father said: "O, Doctor, do something for my child!" I told him that I could do nothing only to use palliative remedies to relieve the suffering, that the case was be-

yond all human skill, but if he thought any one could do anything to help his child to try him. He consulted several colleagues but received no encouragement from them, their prognosis being the same in each case.

They returned to Olathe, where the condition went from bad to worse. The tumor increased at a rapid rate. Then a tumor about the size of an orange formed on the left knee, as also several small ones in other regions, yet the vital organs did not seem to be affected. The cachexia at this time was marked. The patient was at all times conscious and was so until death ended his suffering, which extended over a period of about five months from the time I first saw him.

I feel it to be my duty to acknowledge my indebtedness to Dr. McCall for kindly assisting me in the operation and getting a picture for me at the close of the case.

DISCUSSION.

DR. ADOLF ALT, St. Louis.—These cases are of the worst ones we have to deal with, especially when we get to see them at such a late stage that there is nothing to be done. However, it is gratifying to know that if we see them early enough we can sometimes by prompt action save life. Quite a number of such cases are now on record, and I have had also a number of cases in which the early removal of the affected eye has saved life. The worst cases, however, are those of binocular glioma. I have reported elsewhere the case of a little girl about one year old who was brought to me with glioma of the retina in one eye. I got the parents' consent to remove the eye, and this little girl is now a young lady and came to see me the other day to get glasses for the other eye. She is perfectly strong and healthy. A year after this eye had been removed they brought her sister, fearing the same trouble. To my dismay I found she had glioma in both eyes. I told the parents the question was simply the saving of life by removing both eyes. They would not consent, and the child died in five or six months after terrible suffering. As I said, if we see the cases early enough and get the consent of the parents to remove the eye, we have by prompt action the occasion of saving a life once in a while. I think that almost every oculist has seen a number of such cases.

A PLEA FOR THE OCCASIONAL PERFORMANCE OF THE OPERATION OF DEPRESSION IN CASES OF CATARACT.

By HENRY POWER, F.R.C.S.,

Consulting Ophthalmic Surgeon to St. Bartholomew's Hospital.

IT is somewhat singular that a mode of dealing with cataract that has been in use from the most remote antiquity, which was recommended and practiced by Celsus and Galen, and which is even now almost universally adopted by native operators in the vast continent of India, should have passed into such complete desuetude in this country that I think it quite possible there may be some in this room who have never seen it performed. Various circumstances have contributed to this result, but especially the discovery of chloroform and the employment of solutions of cocaine, which enable the operator to use the knife with far greater precision and success than was possible to his predecessors. The invention of the spring speculum and of the fixing forceps, and the modification of the awkward form of the knife of de Beer into the handy instrument given to operators by von Graefe have had their influence, and finally and above all the introduction of the principles of antisepsis in the operations on the eye—these, each and all, have eliminated many causes of failure, and have contributed their share in turning the attention of ophthalmic surgeons from a practice that was once all but universal.

The results that have been obtained by those who have had large experience in the method generally practiced of extraction are certainly extraordinarily good. In the Ophthalmic number of the *Indian Medical Gazette** Lieutenant-Colonel T. H. Pope, I.M.S., remarks that it often happens in the Madras Hospital that a run of 300 successful cases occurs, but he adds immediately following this, 4 or 5 cases fail either from suppuration, or severe irido-choroiditis, or some unknown cause, and so the average success at once fails. It must be remembered, however, that the term success is applied to all cases that with correcting glasses have distant vision between $^{6}/_{6}$ and $^{6}/_{36}$, and who can see No. 10 Jaeger with a + 10 D or 12 D lens. It is difficult to say whether the operation of

*Indian Medical Gazette, June, 1901, p. 201.

"depression" would under any circumstances give equally good results, because we have but few statistics to hand that deal with large numbers, or that have been undertaken with the same care and precautions as are now adopted in cases of extraction. Yet when depression or reclination was performed by a practiced hand the results seem to have been very good. Himly, to take one example only, states in his work published in 1843 that severe inflammation rarely followed reclination, and when it did it often cleared up without leaving any bad consequences. He seems to have been very successful in his cases of reclination, for in 50 cases he only had two failures, one of which was amaurotic and should not therefore have been operated on.

When the result of depression is fortunate, the operation is certainly exceptionally brilliant. At a stroke vision is restored, and less damage is done to the eye than in any operation with the knife. Surgeon-Major Maynard, I.M.S., observes* that in sixteen extractions the other eye had been couched by some quack with varying, though often brilliant results. This statement is rather suggestive when we reflect on the conditions under which "depression" is performed in India. All the surgeons I have conversed with, and who have seen native practice, state that no antiseptic measures are adopted; that the instrument is a needle, often blunt and rusty, or even a thorn, and that no after-treatment is carried out. Under such conditions, far from obtaining "brilliant" results, one would expect that the operations would invariably fail.

The ill-effects that I find charged against depression are violent vomiting, irido-cyclitis, suppuration of the globe, glaucoma, and sympathetic ophthalmia. My experience of this operation is, of course, very limited as compared with that of the itinerant oculists of India; but I may remark that I saw it performed by the two Guthries, and by Mr. Hancock, and that I operated in this way several times myself in my younger days, without any of these terrible results occurring. The supervention of vomiting was much dreaded, but we, who have gone through the chloroform period, know that, however objectionable, vomiting does not commonly lead to

*Indian Medical Gazette, June, 1901, p. 201.

loss of the eye even in cases where extraction has been performed. Yet its occurrence led many Continental surgeons to recommend their patients to forego the advantages of chloroform, in view of the likelihood of the occurrence; and we all rejoiced when the discovery of cocaine enabled us to dispense, in the majority of cases, with chloroform.

As for septic inflammation and suppuration, depression has had no chance, for the proceedings by which comparative immunity from these troubles have been secured had not been evolved by the patient labors of Lord Lister and the bacteriologists.

Irido-cyclitis is a possible result and certainly did occur, but I think chiefly in those cases in which the lens broke up under the pressure used to effect its depression. When that occurs the judicious operator will withdraw the needle and wait. It is far better than to risk the entrance of large fragments into the anterior chamber or the introduction of curettes through an enlargement of the little wound in the endeavor to draw them out. Breaking up of the lens defeats the object of effecting depression. It is better to wait and then act according to circumstances.

Another bad effect mentioned in books—glaucoma—does, I suppose, occasionally follow the operation of depression, but it is surely much less to be dreaded than formerly, since a subacute attack can be controlled with eserine, and an acute attack can be met by an iridectomy. The danger of the chronic form leading to the glaucoma absolutum of von Graefe appears to me to be somewhat exaggerated. These glaucomatous affections have been attributed to the contact of the lens with the retina, but it is notorious that the lens does not soon or readily fall to the lowest point of the globe. We have all of us, I suppose, seen cases of lenses dislocated by violence, and have not always thought it prudent to interfere with the object of removing it, particularly if the vision, with a correcting glass, is good. Such lenses often remain harmless for considerable periods. I have seen several such cases following blows with footballs, cricket balls, and tennis balls, as well as from soda water and champagne corks. It is to be observed, morever, that years may elapse before chronic glaucoma follows the act of depression, if that is really the cause of it; and if at 75 or 80 years of age a slight

operation secures four or five years of good vision, I think we are justified in running the risk, where other circumstances contraindicate the operation of extraction. Lastly, in view of the microbic origin of sympathetic ophthalmia, now very generally entertained, I do not see any more reason for anticipating the advent of that affection, if proper antiseptic precautions are taken in depression, than after extraction.

I do not, of course, advocate any change from the ordinary procedure for the extraction of cataract when the general and local conditions are favorable. Given a wholesome constitution and a healthy eye, and extraction, even at an advanced age, may be successfully performed; and I am well aware that, on the other hand, there are several conditions which either preclude, or at best render extremely doubtful, any attempt to depress the lens, such as, for example, the presence of adhesions between the iris and the capsule and a soft and degenerated lens, since in the former case any drag upon the lens is likely to detach the iris more or less completely from the ciliary zone, leading to hæmorrhage and other complications, and in the latter case because the lens is apt to break up and excite iritis and iridocyclitis.

The cases in which I am of opinion it would be advisable to practice depressions are:

1. Those in which such combination of difficulties are present as to render it doubtful whether any operation at all should be undertaken — as, for example, in those who are greatly enfeebled by age and other infirmities. In this condition the ordinary operation for cataract fails, even where performed by the most expert, simply from non-union of the lips of the wound.

2. Those in which there are physical obstacles to the performance of the operation for extraction, as, for example, where there is an extremely small palpebral fissure, or where the eye is small and very deeply set in the orbit. In such cases, if the surgeon attempt to extract, he is apt to make too small an incision; the opening has to be enlarged with scissors, or with the blunt-pointed knife the lens has to be squeezed out; much cortical matter is left behind, and well-known after-trouble arises.

3. In cases in which a troublesome condition of chronic conjunctivitis is present that does not yield to treatment.

Here the conditions are favorable to depression, unfavorable to extraction, for the conjunctiva can be cleansed, and so far temporarily rendered antiseptic, and there then is little danger from a small puncture, the wound closing before any infection can occur, whilst it is different with the incision for cataract; for the conjunctival sac, especially if some dacryocystitis be present, cannot after the operation be so scrupulously purified, and hence infection proceeding from the edges of the wound may occur a day or two after the operation.

4. There is yet another complication of cataract: deafness, as in one case in which I greatly regretted I did not endeavor to depress instead of performing extraction in the usual way. I had known the patient for a long time; she was nearly 80 years of age. The cataracts were hard, and with the failure of sight deafness gradually advanced. I operated in the usual way—von Graefe's knife, upper section, iridectomy. The operation went off well, and for three days no bad symptom arose. One night, weary, I suppose, of the confinement and persistent bandaging, and anxious to know whether the operation had succeeded, she pushed up the bandage with her fingers, opened the wound; severe inflammation followed, and the eye was lost. In that case it appears to me I should have done better to have depressed, kept the patient in bed for one day, and then allowed her to go about as usual.

5. Other classes of cases in which depression would probably give better results than extraction are lunatics, imbeciles, and idiots, in all of whom interference with the bandages is a not unlikely event, and requires, at all events, to be carefully guarded against, whilst with depression the patient need scarcely be kept in bed or on a couch for more than a day, or may be allowed to go free from the moment of operation. Such patients are sometimes so timid that they throw themselves into paroxysms of passion, as was the case with the deaf-mute, James Mitchell, recorded in the *Philosophical Transactions*, for whom Mr. Wardrop constructed a sort of coffin with a hole for his head. Again, I always feel some hesitation in undertaking extraction in old, fat, flabby, and phlegmatic patients, because they are more liable to complications than thin alert persons. The former are often gouty or rheumatic, do not bear confinement well, and require a course

of preliminary treatment, the main features of which are purging and exercise. I operated by depression on such a patient about 1860, and the case did well for a year, but standing one cold spring day at a railway station she caught cold, and severe rheumatic inflammation followed, which led to the loss of the eye. Nothing daunted, she submitted the opposite eye to a similar operation, and I had the pleasure of subsequently seeing her reading and working for a period not far short of twenty years, the floating lens being very visible when the eye was turned down.

6. Chronic bronchitis is not an uncommon concomitant of old age, and has been the cause of separation of the lips of the wound, and hæmorrhage or suppuration in many cases of extraction; such dangers would be avoided by the use of the needle instead of the knife.

7. There are some cases of cataract in which the experienced operator dreads the consequences of attempting to extract, or refuses altogether to treat. I mean those in which, from softening or liquefaction of the vitreous, the iris trembles, and the lens easily shifts its place. If a large cut be made, the vitreous flows away with the lens. The latter, indeed, sometimes sinks out of sight, and requires to be fished for with great risk of injury to adjoining parts. Collapse and loss of the eye then follows, though it must be admitted that such eyes sometimes plump up again and become serviceable.

8. Another class of cases in which "depression" may be preferred to "extraction" is where one eye has been unsuccessfully operated on. If the patient has had much pain, whilst he can still see large objects he not infrequently declines to submit to a second extraction; but if the nature of the operation for depression be explained to him he will not demur.

Lastly, though this is extremely rare as a contraindication to "extraction," there is the hæmorrhagic diathesis. Few, I imagine, would care to use the knife in a patient who was known to be the subject of hæmophilia.

These seem to me to be the chief circumstances under which it would be at least allowable, if not advisable, to revert to the ancient method of "depression" for the restoration of light in cases of cataract.

MEDICAL SOCIETIES.

PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.*

Thursday, October 17th, 1901.

Primary Chronic Glaucoma.

The President took as the subject of his presidential address Some Clinical Experiences of Primary Chronic Glaucoma and the Value of Iridectomy. After paying a tribute to von Graefe for the benefit he had conferred on mankind by introducing iridectomy for the treatment of glaucoma, he stated that we were still following in his steps. Myotics indeed had been introduced since his day and were of considerable use, but their action in his opinion was purely palliative and not curative. Iridectomy was the only known cure for this disease which was so fatal to eyesight. Its pathology had been so much elucidated in late years by the researches of Brailey, Priestley Smith, Nettleship, and Treacher Collins, that a rational idea could not be held as to how iridectomy acted. It was difficult to follow up cases years after operation, but only in this way was it possible to draw accurate conclusions. In the years between 1886 and 1894 he had operated on 67 cases. Of these, 11 were dead, 19 were not to be found, while 37 had been traced. Of these, 10 had become blind—1 from atrophy of the globe, 1 from recurrence of the disease, and 8 from optic atrophy. In all but one the tension was normal. In 4 of the remaining atrophy was going on, while in 23 the vision was better than when the operation was performed; in others it was the same, and in a few it was a little worse; that was to say, 62 per cent. held their ground from seven to twelve years after the operation, while with one exception the tension was normal. He was therefore of opinion that in the majority of cases iridectomy did reduce tension permanently. In 1887 he operated on the only remaining eye when the vision was $^{6}/_{9}$. A few months ago he

*British Medical Journal.

had seen the patient, who saw quite well; the fields, however, had undergone contraction to 10 degrees. Another successful case he had followed for nineteen years. In a case he had operated on for acute glaucoma the patient retained good vision for the rest of her life, which was 27 years. He thought that an operation should be done on every case in which the patient was strong enough to stand it, and the earlier it was done the better; but he would never hesitate to operate on an eye even if the field were contracted to fixation, provided there was any vision worth saving. Even in the premonitory stage he advovocated operation.

Mr. Nettleship, in moving a vote of thanks to the President for his address, said how cordially he agreed with the views he had expressed.

Mr. Silcock seconded the vote, which was carried.

Rodent Ulcer of the Cornea.

Mr. S. Johnson Taylor read some notes on a case of rodent ulcer of the cornea of a child, a condition rare at any age, but particularly so in children. The patient was aged three years. When first seen the condition resembled and was taken for a phlycten of the cornea, and was treated with atropine and yellow ointment, and iron was given internally. A little later there was a little discharge, but the palpebral conjunctiva was quite smooth. He then left off the atropine and used yellow ointment, and painted the patch with silver nitrate five grains to the ounce; the strength was increased to ten grains, but still the ulcer spread. He then gave an anæsthetic, when the upper third of the cornea was found to be ulcerated and vascular with a grey infiltrated part below. There was no iritis or hypopyon. He scraped the surface and painted it with pure carbolic acid, and used quinine lotion, atropine, and iodoform. It then steadily improved and healed. In all such cases it was necessary to use strong remedies, and the benefit obtained was well illustrated by the ready way in which this ulcer yielded to the treatment when it had successfully resisted milder measures.

Mr. Linsday Johnson said that although the disease was very rare in man, yet he had seen a large number of cases in young bears, in lions, and in rats. In lions and in bears he

always applied either pure carbolic acid or solid stick of silver nitrate, and this usually arrested the ulceration. He had always found a micro-organism present, and he asked whether in the case under discussion there had been any contamination with animals.

Mr. Johnson Taylor, in reply, stated that he considered the condition was microbic in origin, and that his patient had certainly not been in contact with wild animals or as far as he knew with rats.

Card Specimens.

The following card specimens were shown: Mr. Marcus Gunn: Persistent Double Keratitis Without Tendency to Ulceration in which several members of the family were affected; there was no suspicion of syphilis, but a marked history of consanguinity.—Mr. Lindsay Johnson: A Case of Deep-Seated Infective Conjunctivitis.—Mr. Sydney Stephenson: A Case of Congenital Distichiasis.—Mr. Treacher Collins: A Case of Mooren's Ulcer of the Cornea Six Years After the Disease had First Started.—Mr. N. Bishop Harman: (1) Case of Paresis of the Third Nerve in which, on lifting the drooping lid, there was coincident drooping of the sound lid; this occurred in a man, aged 35, and had been present three months, probably syphilitic in origin. (2) Choroidal Angiosclerosis With Pigmentary Degeneration.—Mr. G. W. Roll: Congenital Patch of Pigmentation in the Fundus Oculi.—Mr. Cargill: Sclero-Corneal Dermoids in Both Eyes.—Mr. Silcock: Primary Chancre of Eyelid in an Infant.

DISCUSSION ON THE DIAGNOSIS, PROGNOSIS, AND TREATMENT OF PERNICIOUS MYOPIA, IN THE SECTION OF OPHTHALMOLOGY, BRITISH MEDICAL ASSOCIATION.*

W. H. H. Jessop, M.B., F.R.C.S., President.

Mr. Priestley Smith said: We know by experience that myopia in many persons is an innocent condition, which continues through many years without much change, causing some inconvenience, it is true, but not leading to disaster of any kind. We know, on the other hand, that in some persons myopia is a pernicious condition which reaches a higher and higher degree as time goes on, is accompanied by damage to the tunics of the eye, and leads sooner or later to serious impairment or loss of sight. By what means and to what extent can we distinguish between these different forms of the disorder in their early stages? What can we do to arrest or hinder the progress of a pernicious myopia? These are the practical questions which we have been invited to discuss.

By some authorities innocent and pernicious myopia are sharply distinguished from each other as two essentially different conditions, just as in some works of fiction the good people are sharply distinguished from the bad. In neither case, I think, is the distinction true to life. In myopia, as in human nature, we find between the two types innumerable grades, variations, and combinations, among which there is no place for a dividing line. There are many cases of myopia which cannot be classed forthwith as innocent or pernicious. In attempting to predict their course we have carefully to consider many factors and many possibilities. The chief data on which any forecast must be based are, I think, the following:

1. The age of the patient.
2. The grade of the myopia.
3. The condition of the choroid and retina.
4. The constitutional condition.
5. The evidence relating to heredity.
6. The occupation of the patient.

*British Medical Journal.

I propose to deal briefly with each point, and must speak dogmatically, for time will not permit of cautious arguments and reservations. I hope by so doing to provoke the more discussion.

1. *Age.*—Other things being equal, the younger the patient the more likely is the myopia to increase in degree. In childhood and early youth myopia is rarely stationary. It usually increases during the period of bodily growth, and the rate of increase diminishes with the approach of adult life. In a large number of cases, perhaps in a majority, it comes to a standstill between the ages of 15 and 25. Age alone, however, justifies no inference.

2. *Degree of Myopia.*—Other things being equal, the higher the myopia the more likely is it to increase. For example, if fifty children, all of one age, have various degrees of myopia, the future increase of their myopia will, on the whole, be greater among those who are more myopic than among those who are less myopic. The same rule holds in adult life; but for all degrees of myopia the probable future increase is less than in early life. It follows that a high myopia in a child is of very evil augury. A child who has 10 D. when he is 10 years old is likely to have 20 D. when he is 20. Fortunately such cases are rare. But in adults we can form no forecast, even from the grade of the myopia and the age taken together, unless we take also into account the actual state of the choroid and retina.

3. *Condition of the Choroid and Retina.*—The average vision of myopes sinks as the grade of the myopia rises. Richardson Cross has given striking statistics on this point.* The higher grades are to be feared far less for the error of refraction which glasses can correct than for the loss of vision due to choroidal and retinal changes, for which there is no remedy. In general these changes vary in gravity with the grade of the myopia, but they bear no fixed proportion to it. With equal grades of myopia they are more extensive in the older persons than in the younger. A child with a myopia of 8 D. may have little or no choroidal change, but we must not regard him as permanently exempt; it is likely to develop later. An adult with 8 D. will generally show considerable

*Richardson Cross, British Med. Jour., 1896, vol. ii., p. 633.

choroidal change; should he exceptionally show none, he is safe; at any rate, much safer than the child.

What is the essential nature of these changes? They are, in their usual order of occurrence, first, the typical myopic crescent, then the more diffuse and patchy thinning of the choroid in the adjacent region, then pigmentary and hæmorrhagic changes in the retina at or near the macula, and in some cases detachment of the retina. The nature of the crescent is beyond dispute: it is due to stretching and displacement of the choroid in relation to the disc, brought about by yielding and extension of the sclera. Weiss, and lately Heine, have demonstrated the fact of this displacement by traction in the clearest manner. The more diffuse changes which occur later appear to be due to further stretching accompanied by vascular and degenerative changes in the damaged membranes.

But this statement does not cover the whole ground. In certain cases myopia develops rapidly in connection with obvious inflammation of the choroid, as in some cases of syphilitic choroiditis. Here the choroiditis seems to be the primary disorder, the yielding of the sclera the consequence. Further, in the region of the posterior staphyloma, we find, on dissection, that the choroid and sclera are abnormally adherent to each other. Here is evidence of sclero-choroiditis. Is myopia, then, in general, a result of an insidious choroiditis? Apparently not, for in the earlier stages there is usually no discoverable inflammation, and there is no retinal damage such as we should expect if the underlying membrane were inflamed. On the other hand, it is clear that congestion and inflammation do play an important part in certain stages and certain forms of the disorder, and chiefly in the pernicious forms. To what extent the yielding of the sclera and the vascular and degenerative changes in the choroid and retina depend on constitutional causes, rather than on the mechanical effects of muscular action, dragging on the optic nerve, pressure of the orbital contents, and so forth, is an important question.

4. *Constitutional Condition of the Patient.*—We all see cases in which a rapidly progressive myopia is associated with malnutrition from one cause or another. Nettleship, speak-

ing of myopia, says: "General enfeeblement of health, as after severe illness or prolonged suckling, seriously increases the risk of its progress, even after middle life."* Wray found in several cases that where one member of a family had a high myopia, while the brothers and sisters had none, the myope had suffered from protracted infantile marasmus, the others had not.† Schwabe, from extensive observations in Leipzig, concludes that men and women acquire high myopia with equal frequency, but at all ages the reduction of vision is greater in the women than in the men. The complications of high myopia, he says, are twice as common in women, and begin to appear in the lower grades, 6 to 10 D., while in men they are uncommon under 10 D. He attributes the difference to the greater liability to illness in women, their lack of exercise in the open air, and especially, as regards the graver complications, to the climacteric.‡ I may here repeat a suggestion made at one of our annual meetings, eleven years ago, that the yielding and deformation of the sclera in some forms of myopia is analogous to the yielding and deformation of the bones in rickets. Special attention to the question has been given by Batten.§ He has advanced evidence to show that the development of myopia is frequently connected with chronic constitutional disturbance, and especially with high arterial tension. But of his observations I will leave him to speak. It is clear that constitutional disease may be a factor in any case of myopia. It may account for the abnormal yielding of the sclera; it certainly often aggravates the morbid changes in the choroid and retina.

5. *Evidence Relating to Heredity.*—The tendency to myopia is very frequently hereditary. Some observers hold that inherited myopia is commonly an innocent disorder, while the non-hereditary forms are usually pernicious. Have we statistics in proof of this? It would be difficult to obtain them, for we cannot exclude heredity merely by examining the father and the mother. Moreover, at the time of life when the complications of high myopia chiefly occur the

*Nettleship, Diseases of the Eye.

†Wray, Ophth. Rev., 1897, p. 359.

‡Schwabe, Nagel's Yearbook, 1894, p. 147.

§Batten, Ophth. Rev., 1862, p. 1.

patient is not likely to bring his parents with him. They are probably inaccessible. Hereditary or family myopia, even of high degree, is sometimes of remarkably innocent type. Maclehose has published a striking instance of this.* But heredity confers no immunity from pernicious complications. I know a family where the father has myopia of 10 and 6 D., and two daughters have each lost the use of one eye through complications of high myopia which occurred during adult life. The other sons and daughters are all, or nearly all, free from eye trouble. No doubt it is better to have a myopia inherited from one's parents and an otherwise sound organism, than a myopia acquired for one's self by reason of debility or disease; but we must not pronounce a myope to be safe simply because his parents were myopic before him.

6. *Occupation.*—The future of many myopic eyes depends on the way in which they are used. Prolonged and habitual close work does harm. We see the effect in overworked school children, clerks, schoolmistresses, literary men, seamstresses, jewelers, typesetters, and others. We see it not only in the greater prevalence of complications among such persons, but in individual cases. Excessive close work in early life is often accompanied by rapid increase of refraction; in later life it often aggravates the graver complications. Patients who must, or will, continue such work in excess especially those whose working distance is already too short, and who decline to lengthen it by the aid of glasses, are encouraging their myopia to run a pernicious course. The amount of risk must be estimated from the grade of the myopia, the age of the patient, and the amount of choroidal change already present. To give a bad prognosis by way of warning is sometimes the best or only way to prevent its fulfillment.

Time forbids me to enter upon the question of the treatment, and I have no desire to do so, for I had my say on that subject at the annual meeting of our Association held in Birmingham in 1890,† and have little to add at the present time. I will only repeat one leading principle, namely, to suspect every myopia, and especially every youthful myopia, of a

*Maclehose, Ophth. Rev., 1897, p. 207.

†Ophth. Rev., 1890, pp. 313 and 345.

tendency to increase, until time has proved it to be stationary; to be doubly suspicious in presence of congestion or atrophy; and to re-examine at intervals of six months, twelve months, or longer, according to the nature of the case. Only in this way can we decide on the rational measures of precaution which are needed in each case and which are the essence of treatment. We can do far more important service to our short-sighted patients, if they will let us do it, by helping them to avoid a pernicious development of their disorder, than by any attempt at remedial treatment after the fact.

Mr. Percival, after entering into an account of the action of the oblique muscles, contended that when the eyes were converged and depressed as in ordinary reading, together with the internal recti, the superior obliques were chiefly called into play, and to a much smaller extent the inferior recti, in order to overcome the slight residual torsional action of the superior obliques. This, he considered, had an important bearing on the development of posterior staphyloma and perhaps of retinal detachment, as the two obliques would exert a lateral pressure on the eyeball and would tend to squeeze the eye into the shape of a lemon; and it would be the uveal posterior pole which would give way first. He stated that he was in the habit of cautioning his myopic patients against depressing their eyes, and he advised them to read in an arm-chair, so that the book could be conveniently held at the level of the head by resting their elbows on the arms of the chair. By these and similar methods he had been able to arrest the myopia, notably in four bad cases.

Mr. Henry Power warmly complimented Mr. Priestley Smith on his interesting paper. He could only approach the subject from a purely practical point of view. In the case of a myopic child, he was very particular that he should be seated in a position near a window from which good light would fall upon the book. Secondly, great attention should be paid to prevent the patient from acquiring the habit of holding the head too near the book; and, thirdly, the utmost care should be taken to insure that the diet was full and sufficient, and particularly that no work should be done before breakfast. The diet as a rule in schools he was satisfied was insufficient.

Dr. A. Darier said that, after the excellent paper by Mr. Priestley Smith, there was but little to add except to point out the benefit which sometimes followed massage of the globe in myopia. Judging from cases of traumatic myopia in which a blow considerably increased the myopia present, one would expect that massage would do more good in cases of hypermetropia or presbyopia. This was also found to be true, but at the same time cases of low myopia were greatly benefited by it, difficult as it might be to explain. He had seen boys and girls after massage able to see as well without as with their former glasses of — 1.0 D. or — 1.50 D., and in higher cases the vision with glasses could be much improved by massage. He considered that this was caused by its strengthening the ciliary muscle, increasing the nutrition of the membranes, and lessening the tension.

Mr. Thompson confirmed what Mr. Priestley Smith had said, that no hard-and-fast line could be drawn between cases of stationary and progressive myopia. With regard to choroiditis, a useful distinction could be made between cases with a well-defined crescent, whether single, double, or even treble, and those with some changes beyond the crescent. The former cases, if they saw well, might safely be ordered full correction for general use if the myopia did not exceed — 6 or — 8 D. Hereditary cases even as high as — 12 D. or more were often seen without any crescent, and monocular cases often belonged to this class.

Mr. Eales agreed in the general views laid down by Mr. Priestley Smith. He found it convenient to classify the cases into two classes—first, those whose power of accommodation was good or excessive; and, secondly, those whose accommodation was feeble. In the former cases he always ordered full correction for all purposes, even in high degrees of myopia, reserving weaker glasses for reading purposes, etc., for the latter only. He attached considerable importance to the presence of exophoria so often seen in myopes, and for these the addition of prisms often gave relief not previously obtained. Another point of great importance was the correct centering of the lenses, especially in higher degrees, and by attention to those conditions much discomfort was frequently avoided.

Mr. E. Dykes Bower said that being a myope himself he was much interested in the discussion. He considered that reading with insufficient light was a most important factor in developing myopia. Nearly all myopes liked and required plenty of light, and the photophobia experienced by emmetropes and hypermetropes was very seldom seen in cases of myopia. He strongly disapproved of myopes indulging in gymnastic exercises which involved holding the head downwards. Among the many circumstances which combined to increase myopia, he looked upon reading with insufficient light and holding the book too close to the eyes, whether using glasses or not, as two of the most important. No doubt in all cases theoretically glasses should be worn habitually, but practically the majority of those whose myopia was less than 3 D. would not require them for near work. To read without glasses in moderate or high degrees of myopia led to its increase, and probably to weakening and wasting of the ciliary muscle. He drew attention to the fact that Mr. Priestley Smith had said nothing about the prognostic significance of muscæ volitantes. Were they of evil moment? Was detachment of the retina more frequent in such cases, and did such eyes as had them require special care and attention?

Mr. E. E. Maddox thought that the increase of myopia was due more to fatigue and working under bad conditions than either to accommodation or convergence. The chief evil of convergence was the stooping it generally involved. When patients looked obliquely through their glasses to enable them to see better, the muscular strain involved was bad and the refraction should be carefully corrected. He considered that one great reason for the increase of myopia of high degree was the large area exposed to the liquid pressure proportional to the number of unit areas, which was very great in an eye of abnormally large size.

Dr. Bronner had found fundus changes much more common in women than in men, and this, he thought, was due to menstrual vasomotor disturbances. In men choroidal changes were more common if they had suffered from syphilis. If a myope removed to a more sunny and brighter climate, an increase was very likely to take place, due to retinal congestion.

Monocular myopia was more liable to increase if a correcting glass was not worn, and this spoke in favor of correcting all cases of myopia.

Dr. Rayner Batten said that he considered all acquired myopia as liable to progress under any unfavorable circumstance. In addition to the points mentioned by Mr. Priestley Smith, as regards the condition of the fundus, he laid special stress on the distortion and stretching of the retinal vessels as giving the earliest and most certain evidence of the occurrence, position, and progress of a staphyloma, and of the tilting of the optic disc, accompanied by œdema of one side of the disc, as an indication of progressive myopia. He considered that the treatment depended on the cause, and held this was usually due to deficient tone and supporting power in the muscles of the eye. This lack of tone was frequently due to constitutional conditions. He advocated the systematic education of the intraocular and extraocular muscles, and this he considered was best promoted by full correction glasses. He also advised systematic muscular exercises practiced daily, combined sometimes, in the first place, with massage of the face and neck.

Mr. Tatham Thompson said that unfortunately in the earliest stages myopia was seldom seen, and frequently not until difficulties at school brought it under notice. He believed that it was of the utmost importance to correct myopes as early and as fully as possible, thus giving every encouragement to the holding of books at a proper distance. Having once developed a habit of holding objects too near the eyes, it should be combated in every possible way.

Reply.—Mr. Priestey Smith, in reply, remarked on the very unanimous opinion expressed by the different speakers. With regard to muscæ, he considered them of no importance if it were the patient only who saw them; but should floating opacities be observable with the ophthalmoscope, then they really indicated a degenerative change. Jewelers, as a rule, used both eyes, and were subject to myopia, but watchmakers, who used only one with a magnifying glass, were not especially liable to develop myopia.

ABSTRACTS FROM MEDICAL LITERATURE.

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ADVANCEMENT, FORMS OF OPERATION, AND WHEN INDICATED.

Francis Valk (*Ophthalmic Record*, August) discusses the different operations and describes the one he has found most satisfactory, which he credits to Savage, though he and Savage worked simultaneously in developing it. The operation as he performs it in latent and paretic squint is described as follows:

"After the eye has been properly prepared with a solution of boracic acid and a solution of cocain used, or an anesthetic if necessary, the lids are separated by a speculum and the conjunctiva raised with the forceps over the lower or upper point of the insertion of the tendon. I then make a vertical incision followed by one horizontal, forming an L. This is dissected loose from the underlying tissue and then an opening is made in Tenon's capsule and the small hook is passed beneath the tendon; as the point of the hook comes out another hook is inserted in an opposite direction and the two hooks forcibly drawn apart, so exposing the tendon and part of the muscle. I now pass the small instrument, called twin strabismus hook, beneath the muscle, and the hooks are allowed to separate by the action of the small spring in the joint, and the two hooks are then removed. We now have the muscle and the tendon fully exposed and ready for the suture. Now, taking a piece of sterilized catgut from the capsule, we thread the needle and pass it first through the lower part of the tendon, then through the muscle, as far backward as we wish to make the 'tuck,' passing from within outward. It then goes across the belly of the muscle and is passed through, from without inward and back to the tendon where it passed from within outward, at a point corresponding to the first insertion. As the ends are tied over the tendon at this fixed point we see readily the 'tuck' formed as the muscle belly is drawn forward and its long axis shortened.

However, in case of fixed squint, I do a complete tenotomy of the opposing muscle before the suture is tied." The question when this operation is indicated seems to him the most important. He has no confidence in any method of examining that will "take the higher centers off their guard," or destroy the fusion or guiding sensation of the eye, and he uses the tests that destroy it simply as confirmatory. He asks: Do not physiologic conditions show that Nature intended the eye should have power to move the eyeballs more in one direction than others, that the interni should be the most powerful—even independent of the power of convergence—and next, the externi, and in following order the inferior and the superior, the weakest of all? Should we not find, he asks, that the power of adduction is two to four times greater than that of abduction, and the power to turn the eyes downward somewhat greater than that of sursumduction; and, therefore, he fixes his standard as that "in which the power of abduction is more or less one of fixed condition under which the eyes will diverge 6 or 8 prism degrees, so as to fuse or blend the retinal images; and then we expect to find the power of abduction anywhere from 12 to 30 prism degrees without any muscular imbalance. Similarly we find the sursumduction one, two or three degrees in each eye, and the opposing muscle will show deorsumduction of about one degree greater." With this condition of the muscular balanc fully confirmed by several tests, he does not think we can have any muscular imbalance, without regard to what the other tests may develop when deprived of the fusion force. In defining noticeable modifications from that standard for his indications for operation, he points out the indications in various conditions—esophoria, exophoria, diplopia, convergent squint, etc. From his past experiences with the operation of advancement and shortening the indications depend upon one of degree, in reference to the change in position of the visual line, the power of the weak muscle, and that of imbalance of the muscle apparatus, as shown by the tropometer and tests of duction of prisms. He considers that advancement is fully required when we have a deviation of the visual line of more than thirty degrees of the arc. He concludes "That shortening is indicated in all cases of squint, if not too great,

(less than thirty degrees,) combined with tenotomy, of the opposing muscle if necessary. That in all cases of imbalance—without any deviation of the visual line—the operation of shortening the weak muscle, thereby improving its power to turn the eye under the stimulation of the fusion force, is the best in my hands, as I have fully proved its application and usefulness. That the operation of shortening is also indicated in cases of paresis and the so-called paresis of divergence, in which we have a latent insufficiency of the muscular power, that frequently becomes manifest when they are about 40 years of age and presbyopia with hyperopia is present. That in all cases of heterophoria or latent squint, either lateral or vertical, the best results will always be obtained by the operation of shortening, without any fear of an over-correction, as long as the guiding sensation of the eye is free to act on the cerebral centers, as the process of healing takes place."

METASTATIC CHOROIDITIS OCCURRING IN THE COURSE OF PNEUMONIA, DUE TO GRIPPE, ETC.

Chas. Stedman Bull (*Medical Record*, Aug. 31) discusses metastatic choroiditis occurring in the course of pneumonia due to grippe, based on a study of six cases with two autopsies. Metastases are assumed to be less frequent in the distribution of the carotid arteries than in the internal organs. As only one-eighth of the blood of the ophthalmic branch goes to the eye-ball, it is not very receptive of compact plugs, capillary embolic being much more common. It has been asserted the occurrence of metastatic ophthalmitis signifies that the general disease is of a particularly severe type. This the author doubts, for if true the ocular trouble would of necessity be regarded of peculiar and unusual importance, and would have a marked prognostic significance. The bilateral appearance of metastatic choroiditis, like all bilateral intraocular lesions, must be regarded as symptoms of a general constitutional disease, and in such cases we should expect to find numerous metastases in other tissues supplied by the carotid arteries. The disease, as presented in the six cases reported, was characterized by pain in the eye and head, intense vascular congestion, with the usual symptoms of iridochoroiditis, and rapid and total loss of vision. The condition may be ushered in by severe headache, vomiting, rise of

temperature, and general febrile symptoms. Intraocular tension is increased at first, but subsequently sinks much below normal. The course of the disease is from three to six weeks, and the prognosis is always bad, the case always ending in blindness and phthisis bulbi. The author does not advise enucleation in the acute stage of suppuration, especially if Tenon's capsule or the orbital tissue is involved.

A CASE OF SYMMETRIC RETINAL DETACHMENT OCCURRING DURING LABOR, AND ASSOCIATED WITH ALBUMINURIA, RESULTING IN COMPLETE RECOVERY.

Reginald G. Haun and R. Lawford Knaggs (*The Lancet*, May 18) report a case, which is one of the causes of blindness during parturition. Retinal detachment during labor generally ends in recovery, while such an accident occurring during an attack of renal disease is usually a prelude to a fatal result.

AN IMPROVED LANTERN FOR DETECTING COLOR BLINDNESS TO SUPPLEMENT THE DEFICIENCIES OF THE WOOL TESTS.

William Thomson and Archibald G. Thomson (*Philadelphia Medical Journal*, Sept. 21) describe an improved form of lantern which they recommend for use as a supplement to the usual test with Holmgren's wools, the deficiencies of which it supplies. With the new lantern any attempt to dishonestly pass the color test is absolutely impossible.

DISADVANTAGES OF COPPER SULPHATE IN DISEASES OF THE CONJUNCTIVA AND CORNEA.

Cornelius Williams (*Medical Record*, Sept. 21) says the objections to sulphate of copper are so great, and its advantages so much less than those of other and safer remedies, that it should be banished from our list. He thinks bichloride of mercury far superior to copper sulphate in all conditions in which the latter drug is indicated. His conclusions are as follows: 1. Copper sulphate in ocular affections is maleficent in its effects. 2. Any good effect following the application of the solid copper sulphate in any disease of the eye may be obtained with the use of safer and practically painless means. 3. Trachoma is most successfully treated with weak solutions of silver nitrate, together with frequent

irrigation with weak bichloride solution in normal salt. 4. No application to an inflamed conjunctiva which produces a lasting pain should be countenanced. 5. Expression is not absolutely essential, yet much hastens the cure of trachoma. 6. A mydriatic should be used in every disease of the eye involving corneal lesions. 7. Copper has ruined more eyes than it has ever benefitted.

BIFOCAL LENSES; WHAT AREA SHALL BE DEVOTED TO THE SHORTER FOCUS?

John E. Weeks (*Medical Record*, Aug. 24) gets the best results with the small oval "plaster," placed on the distance lens so that it will give sufficient field area at the reading distance, and will also permit of distant vision almost, if not entirely, around it. The "plaster" should be oval, 10 mm. in its vertical, and 15 mm. in its horizontal diameter. If the disc is placed two mm. above the lower edge of the distance lens it will permit of sufficiently clear vision below to enable the wearer to see the curb, descend stairs, etc., without trouble. The dispersion rays of light occasioned by the edge of the "plaster" can be minimized by making the edge very thin.

A CASE OF AMBLYOPIA DUE TO EXCESSIVE TEA DRINKING.

E. W. Henry (*Ophthalmic Review*) reports the case of a man, aged 57, who used no tobacco, drank very little, but indulged freely in excessively strong tea. He complained of dazzling and mistiness, and his vision was reduced nearly one-third. Under treatment, and discontinuing the tea, his symptoms disappeared and vision in three months became normal.

TREATMENT OF THE APPARENTLY UNAFFECTED, OR AT MOST BUT SLIGHTLY INVOLVED EYE, IN CASES OF GLAUCOMA.

G. E. DeSchweinitz (*Phila. Med. Journal*, Sept. 21) recommends keeping the non-affected eye under the influence of a myotic until the other eye is entirely healed and free from irritation. In cases of acute glaucoma the apparently unaffected eye should be operated on as soon as the anterior chamber is restored in the other eye, if indications show that it is likely to suffer a glaucomatous attack like its fellow. Especially does the author recommend this procedure when

the patient is likely to pass from under observation. In chronic congestive glaucoma the same advice applies, and the operation should be urged if the apparently unaffected eye has had attacks of nebulous vision associated with increased tension. In chronic simple glaucoma if any increased tension whatever is shown an operation should be performed, even with perfect central and peripheral vision. In absolute glaucoma the rules laid down for the acute variety are applicable.

ON THE FREQUENCY OF ASTHENOPIA, ESPECIALLY IN AMERICA.

Lucien Howe (*Buffalo Medical Journal*, Sept.) thinks asthenopia is much more frequent in this country than in Europe. This he attributes to the prevalent carelessness in the use of the eyes, the strenuous life we lead, indigestion, etc. He also finds that these cases are more successfully treated in this country than abroad. The average American physician is better fitted to detect and meet the conditions and American ophthalmologists are better supplied with diagnostic appliances for such cases. (They appreciate more thoroughly the necessity of carefully correcting small errors of refraction, and attach much more importance to heterophoria in this class of cases than do foreign ophthalmologists.)

ALBUMINURIC RETINITIS AND URÆMIC AMAUROSIS, WITH ESPECIAL REFERENCE TO THEIR OCCURRENCE DURING PREGNANCY.

Edmund D. Clap (*Boston Medical and Surgical Journal*, July 11) finds these troubles rare in pregnancy, but very important when they do occur. The prognosis of albuminuric retinitis, as to sight, is favorable for the first attack if it occurs after the sixth month, but less and less so for each succeeding attack. Prognosis for sight is bad if it occurs before the sixth month. When it occurs early in the pregnancy, abortion should be considered if the retinitis is at all severe, especially if hemorrhagic, or if a slight retinitis is progressive in spite of treatment. When retinitis develops after the sixth month it is best to wait, especially in first attack, and not induce labor unless some other symptom demands it.